

**OCCUPATIONAL SAFETY
AND HEALTH STANDARDS BOARD**

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Website address: www.dir.ca.gov/oshsb**PROPOSED PETITION DECISION OF THE
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
(PETITION FILE NO. 508)****INTRODUCTION**

The Occupational Safety and Health Standards Board (Board) received a petition on April 28, 2009, from Debbie Prince, Code Specialist, on behalf of Motion Control Engineering, Inc. (Petitioner). The Petitioner requests the Board to amend Title 8, California Code of Regulations, Section 3141.7 of the Elevator Safety Orders (ESO), concerning ascending elevator car overspeed detection means.

Labor Code section 142.2 permits interested persons to propose new or revised regulations concerning occupational safety and health, and requires the Board to consider such proposals, and render a decision no later than six months following receipt. Further, as required by Labor Code section 147, any proposed occupational safety or health standard received by the Board from a source other than the Division of Occupational Safety and Health (Division) must be referred to the Division for evaluation, and the Division has 60 days after receipt to submit a report on the proposal.

SUMMARY

Section 3141.7 of the ESO incorporates American Society of Mechanical Engineers (ASME) A17.1-2004 by reference.¹ ASME A17.1-2004, section 2.26.2.29 provides in relevant part that an overspeed device shall be provided when required by ASME A17.1-2004, section 2.19.1 and shall meet the requirements of section 2.19.1.2(a).

ASME A17.1-2004, section 2.19.1 also provides, in relevant part, that all electric traction elevators whose empty car weight is less than the total weight of the suspension ropes and counterweight (this is typical) are required to be provided with a device to prevent an ascending elevator from striking the hoistway overhead structure as a result of failure in (a) the electric driving-machine motor, brake, coupling, shaft or gearing, (b) the control system, or (c) any other component upon which the speed of the car depends. Furthermore, this device shall detect an ascending car overspeed condition at a speed not greater than 10% higher than the speed at which the governor is set to trip.

The Petitioner reasons that the governor overspeed switch satisfies all of the requirements of ASME A17.1-2004, section 2.19.1.2(a) and that there appears to be nothing that would prohibit

¹ The ESO adoption of ASME A17.1-2004 excludes certain sections of A17.1-2004 which are not relevant to this discussion.

its use other than that this application is not specifically permitted by A17.1-2004. The Petitioner has therefore proposed a new subsection 3141.7(a)(19) to clarify this as follows:

“The detection means for the ascending car overspeed protection device required by ASME A17.1-2004, section 2.26.2.29 shall be permitted to be satisfied by another device specified in ASME A17.1-2004, section 2.26.2, provided that the device used complies with ASME A17.1-2004, section 2.19.1.2(a).”

DIVISION’S EVALUATION

The Division’s evaluation report dated June 26, 2009, states the Division supports the petition to add Section 3141.7(a)(19) which would allow the use of a device specified in Section 3141 [ASME A17.1-2004, section 2.26.2], provided that the device used complies with Section 3141 [ASME A17.1-2004, section 2.19.1.2(a)].

STAFF’S EVALUATION

The Petitioner is proposing to use the governor to activate ascending car overspeed protection. The verbiage proposed by the Petitioner references A17.1-2004, section 2.26.2 which would appear to permit a number of other devices to serve to detect ascending car overspeed conditions; however, the Petitioner is of the opinion that only the speed governor could satisfy the other conditions of their proposal. The Petitioner also states that Canada has permitted the speed governor to be used to detect ascending car overspeed for a number of years and that many other jurisdictions in the United States have been adopting A17.1-2000 or later editions of A17.1 and have also allowed use of the governor for ascending car overspeed detection.

Activation of the overspeed protection device [ASME A17.1-2004, section 2.19.1.2, 2.26.2.9] will cause the emergency brake to engage [2.19.1.2(b)]; however, the governor is also used to control elevator car speed and to engage the safeties in the event of an uncontrolled descent. Should the governor be permitted to control emergency braking [2.2.19.1(b)] and normal braking [driving machine brake, 2.24.8.2], the combination of the two braking actions could potentially cause deceleration forces to exceed 1G. The Petitioner provided Board staff with an ASME inquiry on compound breaking. The inquiry² only addresses overspeed conditions in the downward direction and merely states that A17.1-2000 does not address this issue; i.e., activation of the emergency brake for an overspeed condition in the down direction and compound braking is neither required nor prohibited. The inquiry does not address overspeed in the upward/ascending direction.

There are concerns that if emergency braking were applied simultaneously with normal braking in an ascending overspeed condition, this could potentially create a deceleration greater than minus 1G. If this were to occur, passengers might continue to ascend faster than the car, creating an unsafe condition, such as passengers losing contact with the floor of the car and possibly hitting the ceiling. Thus, the combined (compound) deceleration forces should perhaps be limited to not exceed minus 1G when the car is ascending.

² ASME A17 Inquiry 02-34, approved by the A17 Committee September 11, 2002.

Board staff has reviewed concerns about compound braking in the ascending direction and notes that A17.1-2004, section 2.19.3.2 lists a number of means of applying emergency braking action, including the brake acting on the car, which appears to create a potential for passenger injury by permitting braking in excess of minus 1G to be applied when the car is ascending. Board staff has been informed that an ASME A17 committee recently (approximately May 2009) issued an interpretation on the use of the governor for ascending car overspeed detection; however, this interpretation has not been made public. Board staff has only hearsay information that the interpretation will permit this application.

Because of concerns about compound braking and the potential for excessive braking to cause harm to passengers when the car is ascending, Board staff is of the opinion that if the petition is granted, the proposal should be considered by an advisory committee. The advisory committee should consider the issue of compound braking and determine whether it is appropriate to limit deceleration forces when the car is ascending to protect passengers.

Board staff is also concerned that granting the Petition and moving forward with a rulemaking would be premature in light of the pending release of an ASME A17 committee interpretation regarding the use of the governor for ascending car overspeed detection. Although the Board is not obligated to adopt interpretations of standards-making bodies, the interpretation of this issue could be very relevant to the course of action to be taken.

CONCLUSION AND ORDER

The Occupational Safety and Health Standards Board has considered the petition of Debbie Prince, Code Specialist, on behalf of Motion Control Engineering, Inc., to make recommended changes to Section 3141.7 of the Elevator Safety Orders, concerning ascending elevator car overspeed detection means. The Board has also considered the recommendations of the Division and Board staff. For reasons stated in the preceding discussion, the Petition is hereby **GRANTED** to the extent that a representative advisory committee be convened and chaired by the Division's Elevator Unit to determine the necessity for rulemaking and, if necessary, for further consideration of feasibility and ramifications of compound braking in the ascending direction using the governor.